Antenna Aperture

Parasitic
Element →

Parasitic
Control →   ⊘
Device

Driven
Element

Control
Signal

Feed /
Matching
Network

Parasitic
Controller /
Adaptive Logic
Unit

pre

Power
Splitter

post

Transmitter /
Receiver
Unit

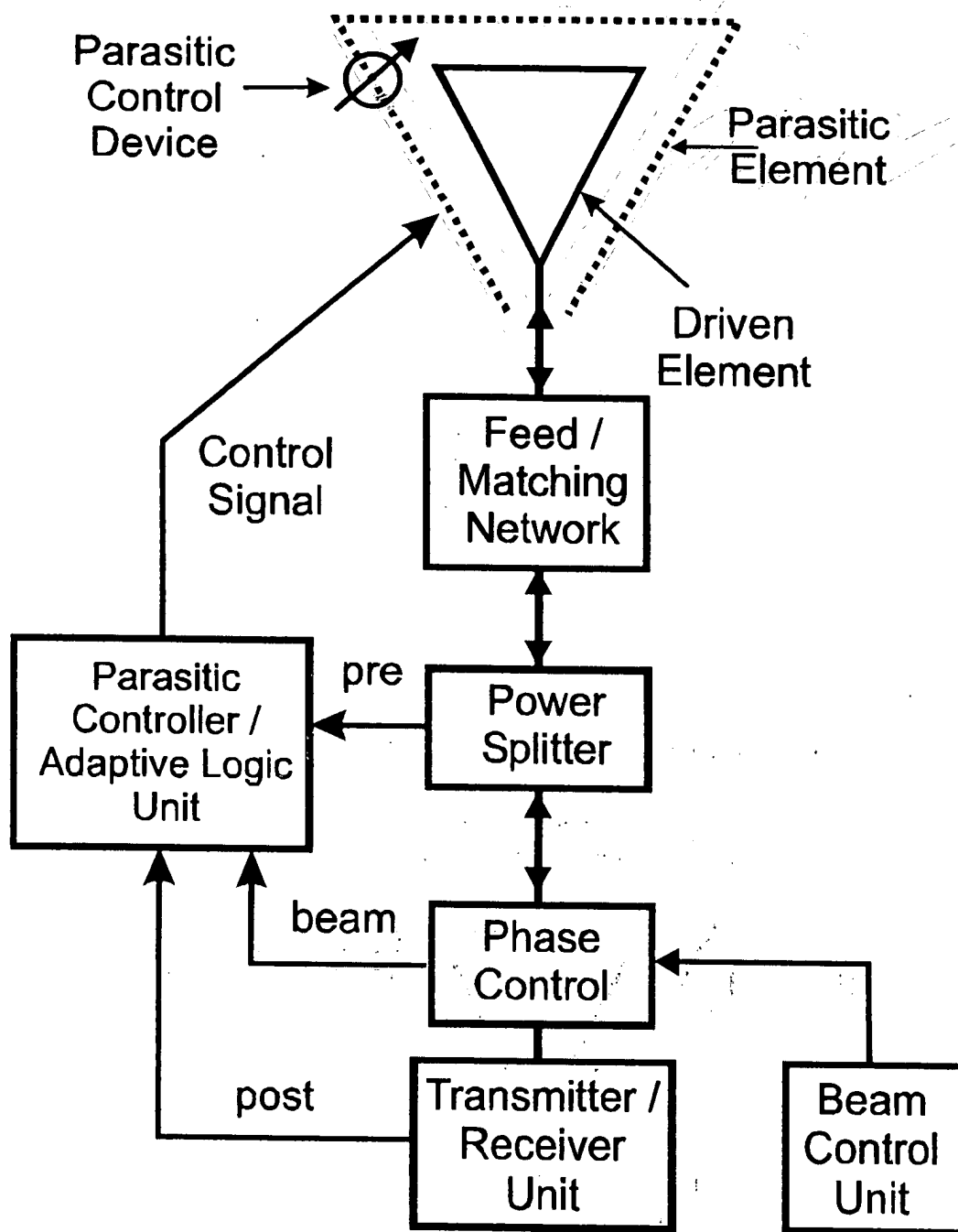Figure 1 – The basic block diagram of a single-element controlled parasitic antenna (CPA).

Figure 2 - General block diagram for a single-element controlled parasitic antenna (CPA) element that might be used as an individual element in a phased array.
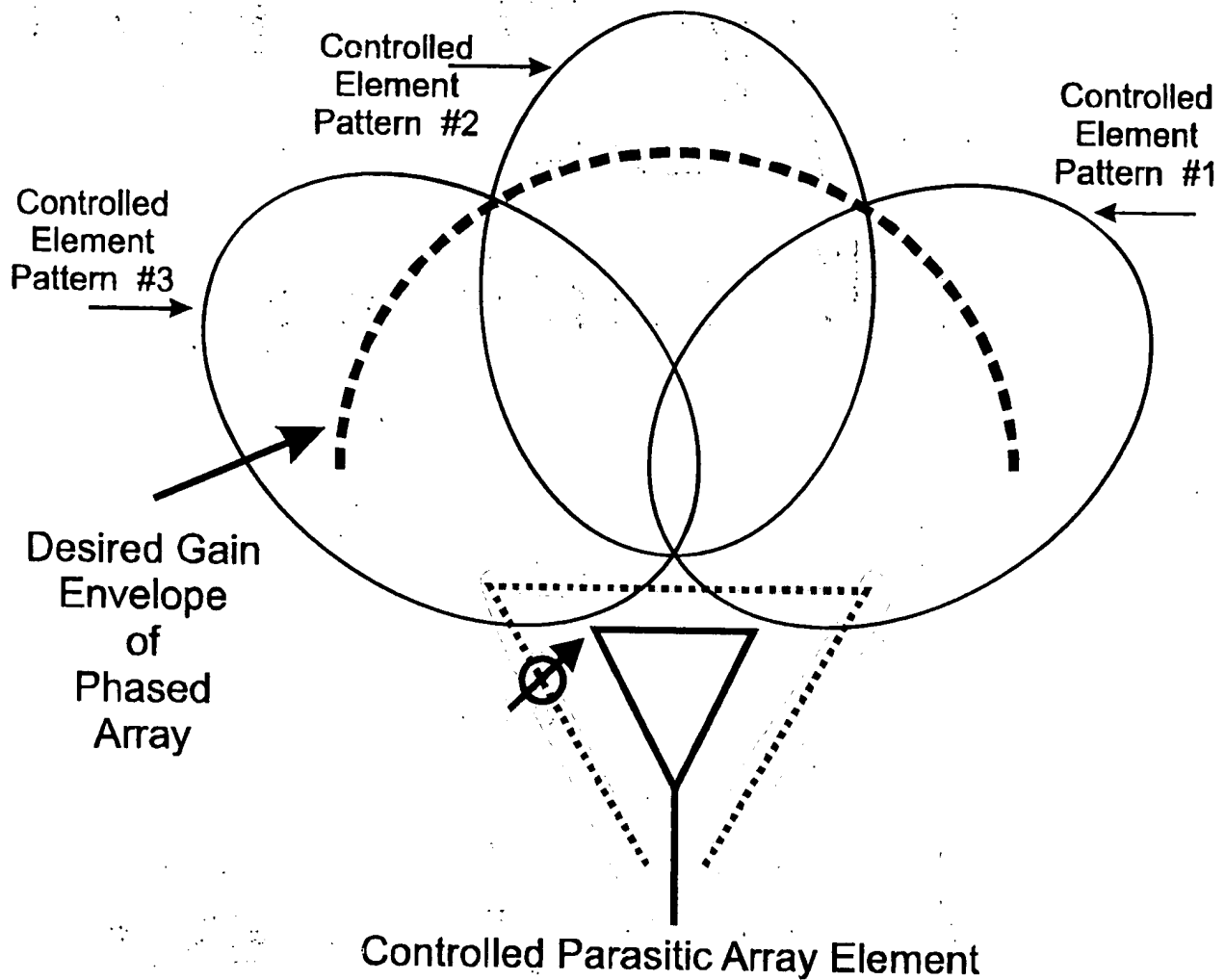
Figure 3 – The general representation of how the element pattern of an individual element in a phased array is controlled so the phased array can be scanned to that direction.
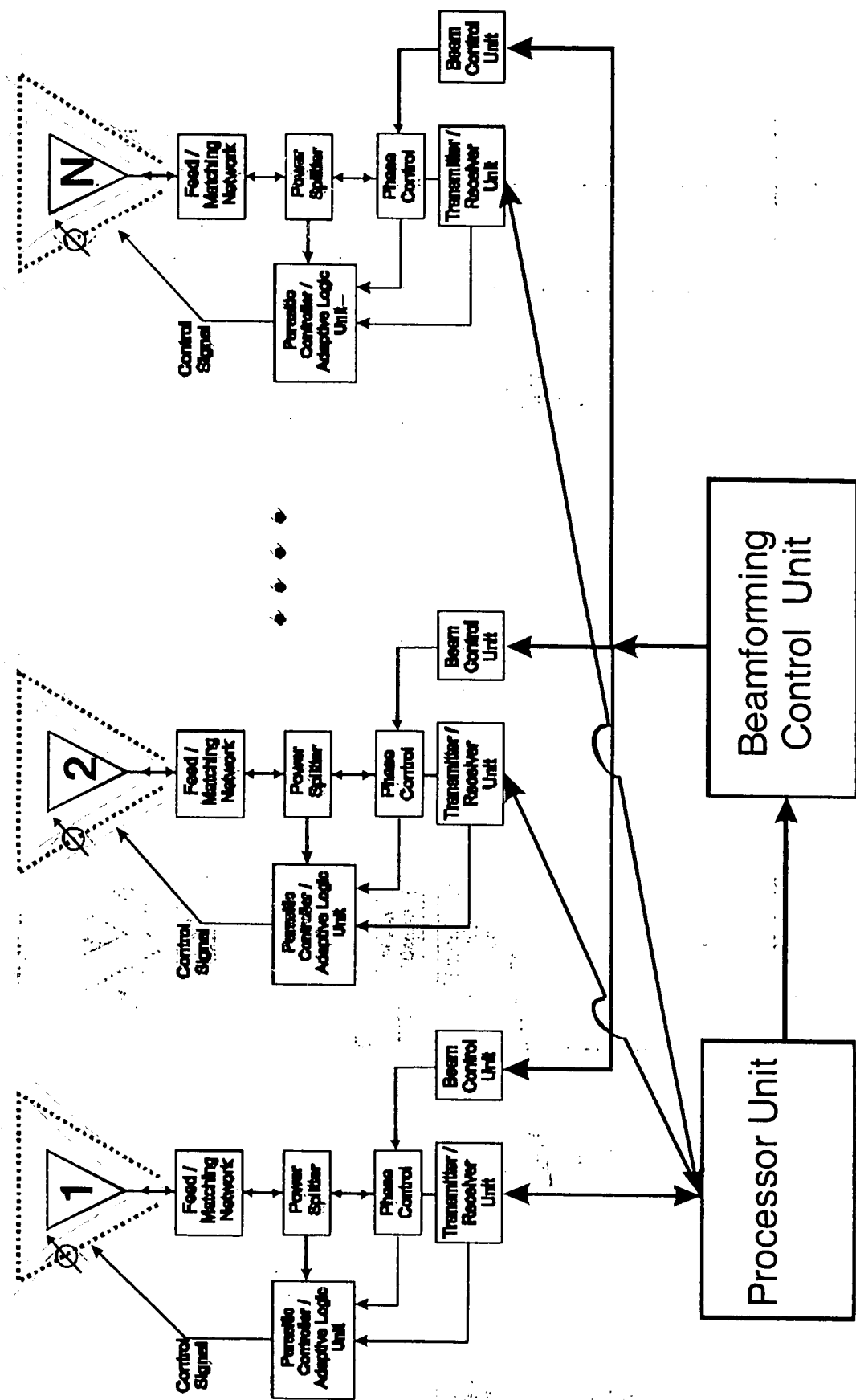
Beam Control Unit

Feed / Matching Network

Power Splitter

Phase Control

Transmitter / Receiver Unit

Parasitic Controller / Adaptive Logic Unit

Control Signal

N

2

1

Beamforming Control Unit

Processor Unit

Figure 4 – Simplified phased array concept made up of N parasitically controlled elements.

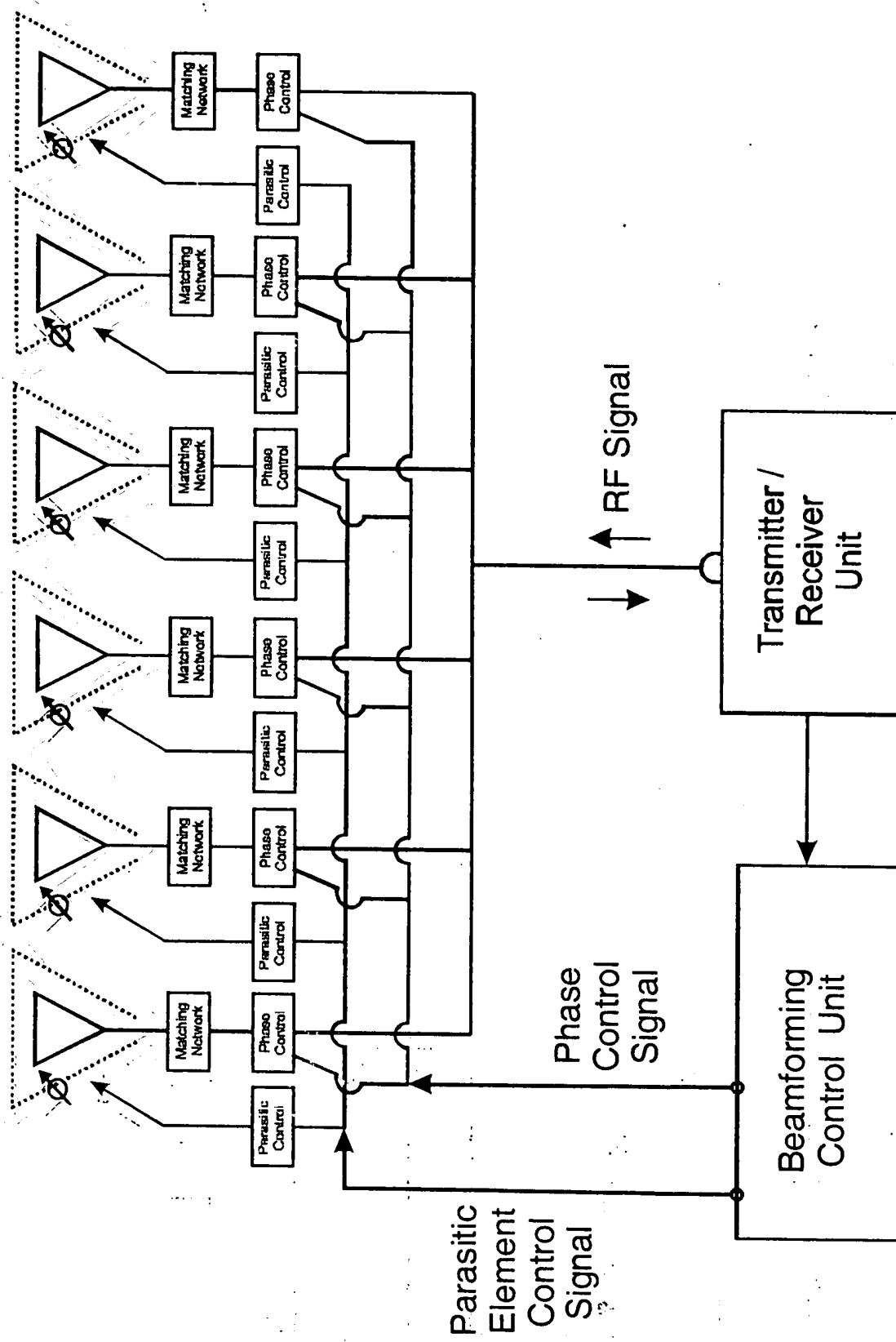This document contains Toyon Research Corporation Proprietary Data

Figure 5 – Simplified phased array concept made up of parasitically controlled elements all controlled from a single beamforming control unit and corporate fed into a transmit / receive module. This can also represent a single subarray for a larger array.
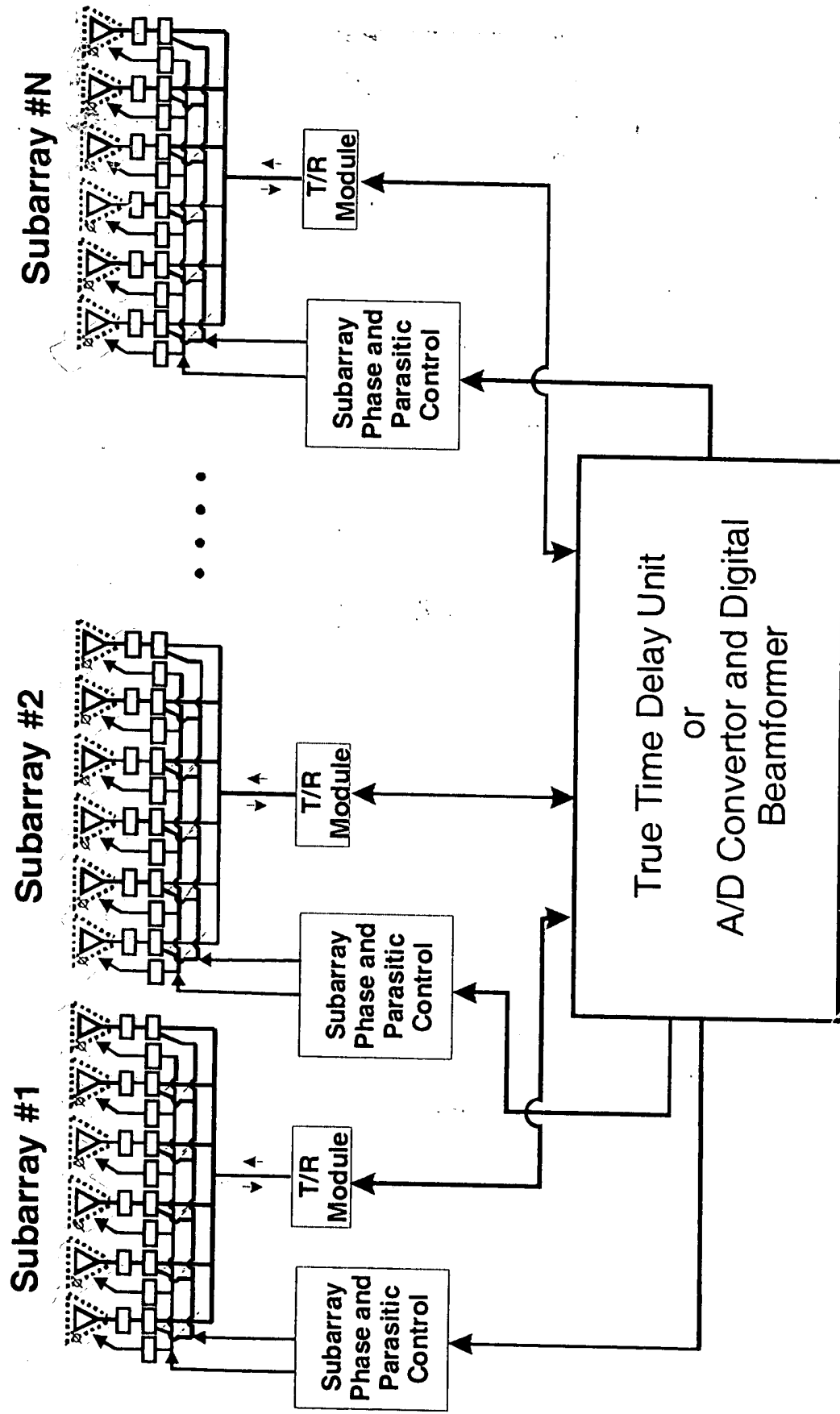
Figure 6 – Simplified phased array concept made up of parasitically controlled elements in N subarrays.